

MERCURY CONTROLS FOR NON-ELECTRIC GENERATING UNITS

DECEMBER 6, 2006



MISSION STATEMENT

- Review and evaluate mercury control technologies and strategies for existing non-EGU mercury emission sources in Virginia

WHY MERCURY CONTROLS FOR NON-EGU's

- Relative Risk of Mercury
- Environmental Sustainability

BACKGROUND: HEALTH IMPACT

- The concerns about health effects of mercury arise because mercury is a neurotoxin that in certain forms can cause abnormal brain development in fetuses and mental retardation and learning disabilities in children

BACKGROUND: ENVIRONMENTAL

- Implications of national, regional, and global long-range transport are not well understood
- Environmental Stewardship

Sustainability:

Meeting the needs of current generations without compromising the ability of future generations to meet their needs.

[World Commission on Environment and Development report, Our Common Future, in 1987.](#)



EXISTING NON-EGU STATE REGULATIONS

- Industrial boilers, incinerators, electric arc furnaces (New Jersey)
- 21 States with vehicle mercury switch legislation
- 11 States offer financial incentives for component removal
- 8 States with mercury labeling regulations

Maine and Minnesota were unsuccessful in passing mercury removal legislation related to cremation.

Minnesota's Bill read: "If after accepting delivery of a body for cremation, it is discovered that the body contains dental mercury...the mercury must be removed from the body by a licensed mortician or dentist before cremation".



ANALYSIS OF MAJOR NON-EGU SOURCE EMISSIONS (Virginia)

- Iron/Steel Melters (16%)
- Coke Ovens (15%)
- Paper Mills (7%)

VIRGINIA NON-EGU Hg EMISSIONS

Virginia Companies Reporting Non-EGU Mercury Emissions in 2003 and
2004 Greater than 10 pounds (TRI-Air only)

Company Name	2004 Hg Emissions (Lbs)	2003 Hg Emissions (Lbs)	
Chaparral Steel (16% of Virginia Hg Emissions)	360	310	
Jewell Coal & Coke (15% of Virginia Hg Emissions)	343	342	
<i>Stone Container (Hopewell)</i>	7.8	63.4	
<i>Meadwestvaco</i>	28	55.5	
<i>International Paper</i>	46.7	43.4	
<i>Stone Container (West Point)</i>	50.7	42.8	
<i>Georgia-Pacific (Big Island)</i>	23	26.5	
Cinergy Solutions of Narrows	26.3	21.7	
<i>Yorktown Refinery</i>	14	14.8	
<i>Phillip Morris</i>	9.8	10.4	
<i>Celanese Acetate – Celco</i>	0	10.2	

VIRGINIA NON-EGU Hg EMISSIONS – Iron/Steel Melters

- The second highest source category contributing to mercury released to the air in Virginia in 2004 was iron/steel melters.
- The primary source of emissions is in mercury switches found in appliances and automobiles.
- The simplest and most cost effective solution to reducing mercury emissions is to remove mercury switches before shredding and sending to melters.

VIRGINIA NON-EGU Hg EMISSIONS – Coke Ovens

- Virginia has one coke production facility in operation, Jewell Coke Company (343 pounds).
- Ovens using chemical non-recovery coking technology involve using the volatile fraction driven off the coal as fuel for carbonization, producing heat, carbon dioxide and water vapor.
- Because coal contains trace levels of mercury, all coking facilities are a source of mercury emissions.

VIRGINIA NON-EGU Hg EMISSIONS – Paper Mills

- The fourth highest source category contributing to mercury released to the air in Virginia in 2004 was paper mills.
- A total of 5 paper mills reporting emissions contributed to 7% of the mercury emissions in Virginia.
- The majority (85%) of the paper mill mercury releases came from a total of 16 small power boilers located at these 5 paper mills. Recently promulgated Boiler MACT Regulations (40 CFR Part 63 Subpart DDDD - National Emission Standards for Hazardous Air Pollutants in Industrial, Commercial, and Institutional Boilers and Process Heaters) have imposed mercury limits on existing and new boilers.

OTHER NON-EGU MISCELLANEOUS SOURCE EMISSIONS

- Incinerators
- Crematoriums
- Thermostats

RECOMMENDATIONS

- Virginia should consider a mandatory program to remove mercury containing parts in existing vehicle fleet and in appliances.
- Virginia should consider implementing the legislation focused on reducing mercury in products and waste, and also should consider implementing a bounty program similar to that of Maine.